WHAT IS CLAIMED IS:

- 1. An article superior in making a waterdrop slip down a surface of the article, the article comprising:
 - a substrate; and

5

10

15

20

25

- a functional film formed on a surface of the substrate, the functional film comprising:
 - (a) a silica forming a matrix of the functional film;
- (b) a dimethyl silicone represented by the general formula [A], the dimetyl silicone being in an amount of from 0.1wt% to 10wt%, based on a total weight of the silica; and
 - (c) a fluoroalkylsilane represented by the general formula [B],

$$CH_3$$
 CH_3 CH_3 $O - Si - A^2 - Si - (CH_3)_{3-q} O - A^3$ [A]

where each of A¹ and A² is independently a bivalent hydrocarbon group, -(CH₂)_i-NH-COO- group, where i is an integer of from 0 to 9, or oxygen; n is an integer of 2,000 or less and represents an average degree of polymerization; each of p and q is independently an integer of from 0 to 3; a total of p and q is 3 or greater; and each of terminal oxygens is independently bonded to a unit that is different from the dimethyl silicone or to another unit that is identical with the dimethyl silicone,

where B represents –CF₃ group or –CH₂CH₂Si(CH₃)_{3·t}(O·)_t group, where t is an integer of from 1 to 3; r is an integer of from 0 to 12; s is an integer of from 1 to 3; and a terminal oxygen is bonded to a unit that is different from the fluoroalkylsilane or to another unit that is identical with the fluoroalkylsilane.

- 2. An article according to claim 1, wherein n is an integer of from 5 to 1,000.
- 3. An article according to claim 1, wherein the fluoroalkylsilane is in an amount of from 3wt% to 20wt%, based on the total weight of the silica.
 - 4. An article according to claim 3, wherein the fluoroalkylsilane is in an amount of from 20 moles to 200 moles, per mol of the dimethyl silicone.
- 5. A process for using an article according to claim 1, comprising the step of wiping the functional film of the article with a windshield wiper, when the article is used as a vehicular windshield.
 - 6. A process for producing an article superior in making a waterdrop slip down a surface of the article, the process comprising the steps of:
 - (a) mixing a silica precursor sol with (i) an alkoxy-group-terminated dimethyl silicone that is represented by the general formula [1] and that is in an amount of from 0.1wt% to 10wt%, based on a total weight of a silica that is to be produced from the silica precursor sol and (ii) a fluoroalkylsilane represented by the general formula [2], such that the alkoxy-group-terminated dimethyl silicone and the fluoroalkylsilane are subjected to hydrolysis and polycondensation to form a polycondensation product and such that a coating liquid containing a mixture of the silica precursor sol and the polycondensation product is prepared; and
 - (b) applying the coating liquid to a substrate,

15

20

25

$$(RO)_{p}(H_{3}C)_{3-p} Si - A^{1} - Si - CH_{3} O - Si - A^{2} - Si - (OR)_{q}(CH_{3})_{3-q}$$
[1]

where each of A¹ and A² is independently a bivalent hydrocarbon group, -(CH₂)_i-NH-COO- group, where i is an integer of from 0 to 9, or oxygen; R is a monovalent hydrocarbon group; n is an integer of 2,000 or less and represents an average degree of polymerization; each of p and q is independently an integer of from 0 to 3; and a total of p and q is 3 or greater,

$B(CF_2)_rCH_2CH_2Si(CH_3)_{3-s}X_s$ [2]

5

10

15

25

where B represents -CF₃ group or -CH₂CH₂Si(CH₃)_{3-t}Y_t group, where Y represents a hydrolysable group and t is an integer of from 1 to 3; X represents a hydrolysable group; r is an integer of from 0 to 12; and s is an integer of from 1 to 3.

- 7. A process according to claim 6, wherein a precursory film formed by the step (b) is heated at a temperature of from 80°C to 600°C into a functional film of the article.
- 8. A process according to claim 6, wherein n of the general formula [1] is from 5 to 1,000.
- 9. A process according to claim 6, wherein the fluoroalkylsilane of the step (a) is in an amount of from 3wt% to 20wt%, based on the total weight of the silica that is to be produced from the silica precursor sol.
 - 10. A process according to claim 9, wherein the fluoroalkylsilane is in an amount of from 20 moles to 200 moles, per mol of the dimethyl silicone.
 - 11. A process according to claim 6, wherein the silica precursor sol is prepared by subjecting an alkoxysilane to hydrolysis and polycondensation.

- 12. A process according to claim 6, wherein the silica precursor sol contains water and an acid catalyst.
- 13. A process for producing an article superior in making a waterdrop slip down a surface of the article, the process comprising the steps of:
- (a) subjecting an alkoxysilane to hydrolysis and polycondensation, thereby preparing a silica precursor sol;
- (b) subjecting an alkoxy-group-terminated dimethyl silicone represented by the general formula [1] and a fluoroalkylsilane represented by the general formula [2] to hydrolysis and polycondensation, thereby preparing a polycondensation product;
- (c) mixing the silica precursor sol with the polycondensation product, thereby preparing a coating liquid; and
 - (d) applying the coating liquid to a substrate,

$$(RO)_{p}(H_{3}C)_{3-p} Si - A^{1} - Si - CH_{3} CH_{3} CH_{3} A^{2} - Si - (OR)_{q}(CH_{3})_{3-q}$$
[1]

15

20

25

5

10

where each of A¹ and A² is independently a bivalent hydrocarbon group, -(CH₂)_i-NH-COO group, where i is an integer of from 0 to 9, or oxygen; R is a monovalent hydrocarbon group; n is an integer of 2,000 or less and represents an average degree of polymerization; each of p and q is independently an integer of from 0 to 3; and a total of p and q is 3 or greater,

$$B(CF2)rCH2CH2Si(CH3)3-sXs [2]$$

where B represents -CF₃ group or -CH₂CH₂Si(CH₃)_{3·t}Y_t group, where Y represents a hydrolysable group and t is an integer of from 1 to 3; X represents a hydrolysable group; r is an integer of from 0 to 12; and s is an integer of from 1 to 3.

- 14. A process according to claim 13, wherein a precursory film formed by the step (d) is heated at a temperature of from 80°C to 600°C into a functional film of the article.
- 5 15. A process according to claim 13, wherein n of the general formula [1] is from 5 to 1,000.
 - 16. A process according to claim13, wherein the fluoroalkylsilane is in an amount of from 3wt% to 20wt%, based on the total weight of the silica that is to be produced from the silica precursor sol.

10

17. A process according to claim 16, wherein the fluoroalkylsilane is in an amount of from 20 moles to 200 moles, per mol of the dimethyl silicone.